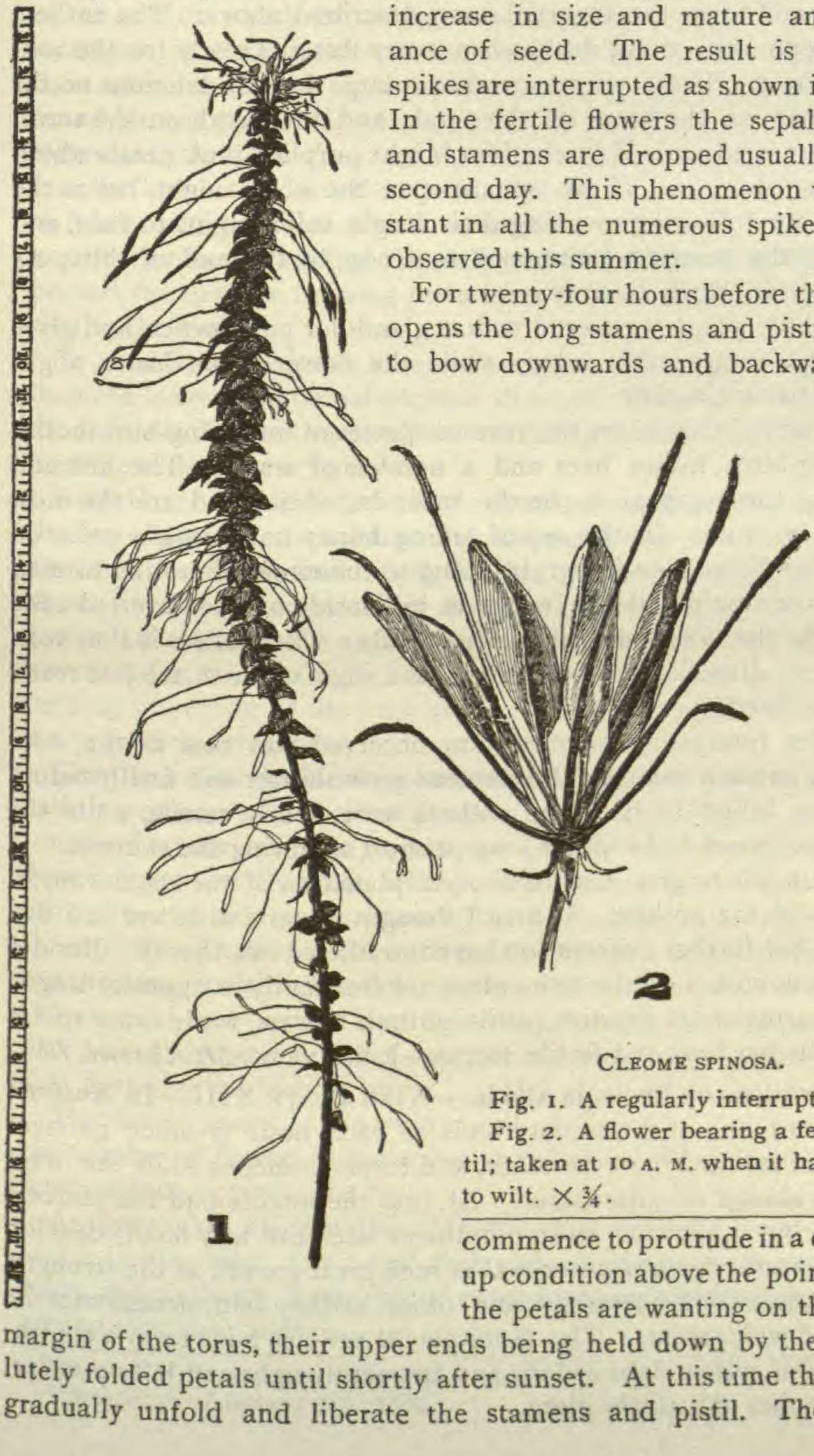
BRIEFER ARTICLES.

Observations on the spider flower.—*Cleome spinosa* L. is a tropical American annual, which has long been cultivated in flower-gardens for its curious spider-shaped flowers. In this vicinity it has escaped to rich neglected places about dwellings. Its especial choice is a neglected wood-yard or some uncultivated rich spot just outside the barnyard. I have in mind several such places where it has appeared annually for the past twenty years, so that it may be said that it is thoroughly "introduced." The plant begins to bloom in July, and continues until frost. It attains a height of from four to six feet; the branches are long and spreading or drooping. The inflorescence is centripetal and terminal, and consists of long lax spikes of purplish-pink spreading flowers. The bracts are large and foliaceous in the fruiting spike. The peduncles are usually 33^{mm} long; the stipes are slender and about 55^{mm} long; the pod, when ripe, is near 50^{mm} long There is a row of seeds along the ventral and another along the dorsal side of the pod or legume. When mature the valves fall off, the seeds are dropped and scattered, but the ribs along which the seeds grew remain; these with the stipes and peduncles are spreading and slightly pendent on the rachis. See Fig. 1. There are four sepals which are 8^{mm} long, and are reflected when the flowers are opened; they are early deciduous. The petals are four in number, 33^{mm} long, ovate-oblong and clawed; their attachment to the torus takes up about four-fifths of a circle, the lower fifth is not occupied. When fully opened they spread outwards and upwards at an angle of about 45°, so that their outer points form about two-fifths of a circle; the lower three-fifths of the circle being occupied by the stamens, the two forming an inverted cone whose apex is at the torus. The stamens are usually 55^{mm} long, six in number, and are arranged in two sets of three each; one set on each side of the pistil. They spread outwards at the same angle that the petals do, and fill up the lower three-fifths of the cone formed by them and the petals. The pistil stands in the center of the cone formed by the four petals and six stamens; it varies in length, when the flowers first open, from 12 to 80^{mm}. The pistils develop in two series; for several successive days there will be only short or sterile ones, then for a number of days only long or fertile ones on a given spike. All the pods contain immature and unimpregnated ovules when the flowers first open, but the pistils that are short do not develop further, and soon the whole flower drops off,

leaving nothing but the empty bract; while the pods of the long ones increase in size and mature an abundance of seed. The result is that the spikes are interrupted as shown in Fig. 1. In the fertile flowers the sepals, petals and stamens are dropped usually on the second day. This phenomenon was constant in all the numerous spikes I have observed this summer.

For twenty-four hours before the flower opens the long stamens and pistils begin to bow downwards and backward and commence to protrude in a doubled up condition above the point where the petals are wanting on the lower margin of the torus, their upper ends being held down by the convolutely folded petals until shortly after sunset. At this time the petals gradually unfold and liberate the stamens and pistil. The pistil



CLEOME SPINOSA.

Fig. 1. A regularly interrupted spike.

Fig. 2. A flower bearing a fertile pistil; taken at 10 A. M. when it had begun to wilt. × ¾.

assumes an erect position while the stamens with the petals spread outward and form the inverted cone described above. The anthers do not open until about dusk, when every thing is ready for the welcome visitors. These are attracted by a large drop of delicious nectar lodged between the bases of the petals and the pistil, on the torus. The repast is advertised by the four bright purplish-pink petals which stand just above it. These remain open the whole night, but as the sun rises the following morning their bright color begins to fade, and they with the stamens commence to droop, by the end of thirty-six hours they are ready to drop.

The whole plant is covered with a glandular pubescence and gives off a rank disagreeable odor; while the flower alone has a slight pleasant balsamic odor.

Its principal visitors are the various species of humming-bird moths, humming-birds, honey bees and a number of wasps. The first and second of these appear to be the most beneficial, and are the most frequent visitors. In the act of taking honey both usually poise on their wings before the flower; in doing so the circle of motion formed by the outer points of the wings is just inside of the inverted cone formed by the six stamens and four petals. The pollen is thus scattered in all directions and thrown on the stigmas which are just ready to be fertilized.

Another interesting phenomenon observed was that as the cool nights of autumn came on the stamens grew shorter and finally before they were killed by frost the anthers were nearly sessile, while the pistils continued to be either long or short as during the summer.

I am unable to give a satisfactory explanation of the regular interruptions of the spikes. At first I thought it was due to wet and dry periods, but further observation has contradicted this theory. Besides the various spikes on the same plant are frequently in opposite stages, some bearing short abortive pistils in their flowers, while other spikes are producing long and fertile forms.—J. SCHNECK, *Mt. Carmel, Ill.*

Observations on Enslenia albida.—WITH PLATE XIII.—In *Enslenia albida* Nutt. one of the axillary buds at each node is much stronger and more forward than the other, and forms branches while the other remains almost or quite latent. At first the weaker bud can scarcely be seen, but it becomes more prominent later and may finally develop several internodes, but never makes such great growth as the stronger, unless injury to the terminal and other axillary bud necessitates its further development. The more potent axillary buds form a continuous spiral, either right or left, and frequently right and left on different branches of a single plant.